

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. Filed Herewith
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Inventor David K. Ovard et al.
Assignee Micron Technology, Inc.
Group Art Unit Unknown
Examiner Unknown
Attorney's Docket No. MI40-341
Title: Wireless Communication Systems, Interrogators and Methods of Communication
Within A Wireless Communication System

PRELIMINARY AMENDMENT

To: Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

EV 026158669

From: James D. Shaurette (Tel. 509-624-4276; Fax 509-838-3424)
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Sir:

Please enter the following amendments prior to examining the above-identified
application:

AMENDMENTS

In the Title:

Please replace the title with the following: -Wireless Communication Systems,
Interrogators and Methods of Communication Within A Wireless Communication System--.

In the Specification

At page 1 before the "Technical Field" section please insert:

--RELATED PATENT DATA

This patent resulted from a continuation application of and claims priority to U.S. Patent Application Serial No. 09/265,074, filed on March 9, 1999, entitled "Wireless Communication Systems, Interrogators and Methods of Communication Within A Wireless Communication System", naming David K. Ovard and Roy Greeff as inventors, the disclosure of which is incorporated herein by reference.--.

In the Claims

Please replace the claims with the following clean version of the entire set of pending claims, in accordance with 37 C.F.R. § 1.121(c)(1)(i).

A marked up version showing amendments to any claims being changed is provided in one or more accompanying pages separate from this amendment in accordance with 37 C.F.R. § 1.121(c)(1)(ii).

1. (Amended) A wireless communication system comprising:

at least one remote communication device configured to communicate a return link wireless signal responsive to a forward link wireless signal;

an interrogator including:

a communication station configured to output the forward link wireless signal, to receive the return link wireless signal outputted from the remote communication device and to generate a return link communication signal corresponding to the return link wireless signal;

communication circuitry coupled with the communication station and configured to communicate the return link communication signal; and

a housing remotely located with respect to the communication station and including circuitry configured to receive the return link communication signal from the communication circuitry and to process the return link communication signal.

2. The wireless communication system according to claim 1 wherein the communication station includes a low noise amplifier configured to increase the power of the return link communication signal.

3. The wireless communication system according to claim 1 wherein the housing includes adjustment circuitry configured to receive the return link communication signal from the communication circuitry and to adjust an electrical characteristic of the return link communication signal.

4. The wireless communication system according to claim 3 wherein the adjustment circuitry is configured to output the return link communication signal at a substantially constant level.

5. The wireless communication system according to claim 3 wherein the adjustment circuitry includes automatic gain control circuitry.

6. The wireless communication system according to claim 5 wherein the automatic gain control circuitry is configured to monitor the power of the return link communication signal and to adjust the power of the return link communication signal responsive to the monitoring.

7. The wireless communication system according to claim 1 wherein the communication circuitry includes a coaxial RF cable.

8. The wireless communication system according to claim 1 wherein the communication circuitry includes a plurality of wireless transceivers individually coupled with one of the housing and the communication station.

9. The wireless communication system according to claim 1 wherein the remote communication device comprises a radio frequency identification device.

10. (Amended) An interrogator of a wireless communication system comprising:
a plurality of communication stations positioned in different locations and individually configured to output a forward link wireless signal, to receive a return link wireless signal responsive to the outputting, and to generate a return link communication signal corresponding to the return link wireless signal;

communication circuits individually coupled with the communication stations and configured to communicate respective ones of the return link communication signals; and

a housing remotely located with respect to the communication stations and including circuitry configured to receive the return link communication signals from the communication circuits and to process the return link communication signals.

11. (Amended) The interrogator according to claim 10 wherein the communication stations individually include a low noise amplifier configured to increase the power of the return link communication signals.

12. (Amended) The interrogator according to claim 10 wherein the housing includes adjustment circuitry configured to receive the return link communication signals from the communication circuits and to adjust an electrical characteristic of the return link communication signals.

13. (Amended) The interrogator according to claim 12 wherein the adjustment circuitry is configured to output the return link communication signals at a substantially constant level.

14. The interrogator according to claim 12 wherein the adjustment circuitry includes automatic gain control circuitry.

15. (Amended) The interrogator according to claim 14 wherein the automatic gain control circuitry is configured to monitor the power of the return link communication signals and to adjust the power of the return link communication signals responsive to the monitoring.

16. The interrogator according to claim 10 wherein the communication circuitry includes a coaxial RF cable.

17. The interrogator according to claim 10 wherein the communication circuitry includes a plurality of wireless transceivers individually coupled with one of the housing and the communication station.

18. (Amended) An interrogator of a wireless communication system comprising:
a plurality of communication stations individually configured to output forward link wireless signals, to receive return link wireless signals responsive to the outputting and to generate return link communication signals corresponding to the return link wireless signals; and
a housing remotely located with respect to at least one of the communication stations and including circuitry configured to receive the return link communication signals from the communication stations and to process the return link communication signals.

19. The interrogator according to claim 18 wherein the housing includes adjustment circuitry configured to adjust at least one electrical characteristic of the return link communication signals.

20. The interrogator according to claim 19 wherein the adjustment circuitry includes automatic gain control circuitry.

21. The interrogator according to claim 18 further comprising a plurality of communication circuits configured to communicate the return link communication signals intermediate respective communication stations and the housing.

22. The interrogator according to claim 18 wherein the communication stations are individually positioned to receive return link wireless signals within one of a plurality of communication ranges.

23. Please cancel.

24. (Amended) A method of communicating within a wireless communication system comprising:

providing an interrogator and at least one remote communication device;

communicating a forward link wireless signal using a communication station of the interrogator;

communicating a return link wireless signal using the remote communication device responsive to the communicating of the forward link wireless signal;
receiving the return link wireless signal within the communication station;
generating a return link communication signal within the communication station corresponding to the return link wireless signal;
communicating the return link communication signal from the communication station using communication circuitry; and
receiving the return link communication signal from the communication circuitry within a housing of the interrogator remotely located from the communication station.

25. The method according to claim 24 further comprising amplifying the return link communication signal before the communicating the return link communication signal.

26. The method according to claim 24 further comprising adjusting at least one characteristic of the return link communication signal after the receiving the return link communication signal.

27. The method according to claim 26 wherein the adjusting provides a return link communication signal having a substantially constant level.

28. The method according to claim 26 wherein the adjusting comprises adjusting using automatic gain control circuitry.

29. The method according to claim 24 wherein the providing at least one remote communication device comprises providing a radio frequency identification device.

30. The method according to claim 24 further comprising processing the return link communication signal after the receiving the return link communication signal.

31. (Amended) A method of communicating within a wireless communication system comprising:

providing an interrogator having a housing and a plurality of communication stations remotely located from housing;

communicating forward link wireless signals using the communication stations of the interrogator;

receiving a return link wireless signals within the respective communication stations of the interrogator responsive to the communicating the respective forward link wireless signals;

generating return link communication signals within the communication stations corresponding to the return link wireless signals;

communicating the return link communication signals from the communication stations using respective communication circuits; and

receiving the return link communication signals within the housing from the communication circuits.

32. (Amended) The method according to claim 31 further comprising amplifying the return link communication signals before the communicating the return link communication signals.

33. (Amended) The method according to claim 31 further comprising adjusting at least one characteristic of the return link communication signals after the receiving the return link communication signals.

34. (Amended) The method according to claim 33 wherein the adjusting provides a return link communication signals having a substantially constant level.

35. The method according to claim 33 wherein the adjusting comprises adjusting using automatic gain control circuitry.

36. (Amended) The method according to claim 31 wherein the communication stations individually receive return link wireless signals within one of a plurality of communication ranges.

37. (Amended) The method according to claim 31 further comprising processing the return link communication signals after the receiving the return link communication signals.

38. The wireless communication system according to claim 1 wherein the interrogator comprises a plurality of the communication stations.

39. The method according to claim 24 wherein the providing comprises providing the interrogator comprising a plurality of the communication stations.

40. (New) The wireless communication system according to claim 1 wherein the at least one remote communication device is configured to receive the forward link wireless signal and to communicate the return link wireless signal responsive to receiving the forward link wireless signal.

41. (New) The method according to claim 24 further comprising receiving the return link wireless signal within the at least one remote communication device, and wherein the communicating the return link wireless signal is responsive to the receiving.

42. (New) An interrogator comprising:
a plurality of communication stations configured to output a plurality of return link communication signals, and wherein the communication stations individually comprise a low noise amplifier configured to increase the power of a respective one of the communication signals;

a plurality of coaxial cables coupled with respective communication stations and configured to communicate respective return link communication signals of the respective communication stations.

43. (New) The interrogator of claim 42 wherein the communication stations are individually configured to:

output a forward link wireless signal; and

receive a return link wireless signal responsive to the outputting of the forward link wireless signal to implement radio frequency identification device communications.

REMARKS

Claims 1-22 and 24-43 are pending in the present application. Claims 1, 10, 11-13, 15, 18, 24, 31-34, 36-37 have been amended to according to the amendments filed in Applicants' Response dated May 1, 2001. Applicants hereby add new claims 40-43.

Claim 24 was objected to in the Office Action dated July 30, 2001. Claims 1, 7-10, 16-18, 22, 24, 29-31 and 36-39 were indicated to be anticipated by U.S. Patent No. 5,970,388 to Will in the Office Action dated July 30, 2001. Claims 2-6, 11-15, 19-21, 23, 25-28 and 32-35 were rejected for obviousness over Will in view of U.S. Patent No. 5,926,747 to Komara et al. in the Office Action dated July 30, 2001.

Applicants respectfully traverse the rejections and urge allowance of the present application.

On page 3 of the Office Action, device 5 is indicated to communicate a return link wireless signal responsive to a forward link wireless signal from 4 with reference to claim 1. It is stated that communication station 4 is configured to output the forward link wireless signal and to receive through 9 the return link wireless signal. Applicants' claim 1 recites the communication station configured to output a forward link wireless signal and to receive a return link wireless signal. It is clear from Fig. 1 of Will and the associated operations thereof described in column 4 of Will that unit 4 does not receive the return link wireless signal outputted from devices 5, 6, 7. The Examiner's interpretation of the operations of Will is inconsistent with the explicit teachings of Will and station 4 does not receive communications from remote stations 5, 6, 7. Positively recited limitations of claim

1 including the communication station are not shown or suggested in the prior art. Claim 1 is allowable for at least this reason.

In addition, claim 1 defines communication circuitry coupled with the communication station and configured to communicate the return link communication signal. Paragraph 4 of the Office Action fails to identify components of Will which allegedly correspond to the claimed communication circuitry. On page 4 of the Office Action, column 4, lines 17-48 of Will are apparently relied upon as disclosing the claimed communication circuitry. Referring to the identified teachings in column 4 of Will, it is apparent that such relates to Figs. 3a and 3b which are physical views of the communications unit previously indicated in the Office Action to correspond to the communication station. However, claim 1 clearly recites the communication circuitry coupled with the communication station and configured to communicate the return link communication signal. The teachings in column 4, lines 17-48 of Will fail to disclose or suggest the claimed communication circuitry. Claim 1 is allowable for at least this additional reason.

Claim 1 also recites the housing remotely located with respect to the communication station. Paragraph 4 of the Office Action identifies component 9 of Will as allegedly corresponding to the claimed housing. Paragraph 5 of the Office Action states that communication station 4 receives through 9 the return link wireless signal apparently indicating component 9 also corresponds to the communication station 4. Claim 1 clearly recites the housing remotely located with respect to the communication station. Accordingly, housing 9 can not correspond to both the claimed communication station and

housing as recited in claim 1. The housing is not shown or suggested in the prior art of record and claim 1 is allowable for at least this additional reason.

Numerous limitations of claim 1 are not shown or suggested by Will. Anticipatory references are required to disclose all limitations of the claim. Claim 1 is not anticipated nor rendered obvious by the teachings of the prior art inasmuch as numerous limitations of claim 1 are not shown or suggested in the prior art. Claim 1 recites patentable subject matter over the prior art of record for at least this reason.

Applicants respectfully request clarification of the rejection of claim 1 if such claim is not found to be allowable in the next Action. More specifically, in the event that a rejection of the claims is maintained with respect to the prior art, or a new rejection made, Applicants respectfully request identification in such asserted references of elements which allegedly correspond to limitations of the claims in accordance with 37 C.F.R §1.104(c)(2). In particular, 37 C.F.R §1.104(c)(2) provides that *the pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.*

Referring to 37 C.F.R. §1.104(c)(2), it is stated that the Examiner must cite the best references at their command. When a reference is complex or shows or describes inventions other than that claimed by Applicants, the particular teachings relied upon must be designated as nearly as practicable. The pertinence of each reference if not apparent must be clearly explained for each rejected claim specified. Applicants respectfully request clarification of the rejection of claim 1 with respect to specific clarified reference teachings therein pursuant to 37 C.F.R. §1.104(c)(2). The previous reasons for rejection

of claim 1 are nonsensical inasmuch as identified teachings of Will fail to disclose or suggest explicit limitations of claim 1.

The claims which depend from independent claim 1 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

For example, with respect to claim 7, and on page 4 of the Office Action, it is stated that it is inherent in Will that the communication circuitry includes a coaxial RF cable. Applicants disagree and the Examiner's reliance on inherency is misplaced. In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). Numerous other alternatives to coaxial RF cable exist which could be utilized to implement communications. Accordingly, utilization of coaxial RF cable does not necessarily flow from the teachings of Will and the reliance upon inherency is improper for at least this reason. Claim 7 is allowable over the art.

Referring to claim 9, on page 3 of the Office Action, it is stated that numeral 19 of Fig. 3a discloses a radio frequency identification device. Applicants disagree. Reference 19 merely relates to a photo ID, such as a photograph. Such teachings in no fair interpretation disclose or suggest a radio frequency identification device as defined in claim 9. Applicants submit herewith an article regarding RFID communications illustrating that RFID is a widely-recognized specific form of radio frequency communication which is

not anticipated by the teachings of Will, including the photo ID 19 thereof. Limitations of claim 9 are not shown or suggested in the prior art of record and claim 9 is allowable for at least this additional reason.

Referring to claim 10, numerous limitations therein are not shown or suggested in the prior art of record. On page 4 of the Office Action, references 4, 2, 9 of Will are identified as allegedly corresponding to the claimed communication stations. Claim 10 recites a plurality of communication stations positioned in different locations and individually configured to output a forward link wireless signal, to receive a return link wireless signal responsive to the outputting, and to generate a return link communication signal corresponding to the return link wireless signal. Accordingly, individual communication stations output a signal, receive another signal, and generate yet another signal. The individual elements 2, 4, 9 of Will at most receive or output two signals. None of the elements 2, 4, 9 teach or suggest the claimed communication stations. Limitations of claim 10 are not shown or suggested in the prior art of record and claim 10 is allowable for at least this reason.

In addition, element 9 provides no outputting of a forward link wireless signal as defined by individual ones of the communication stations. Element 2 fails to disclose or suggest receiving a return link wireless signal, and element 4 fails to receive a return link wireless signal responsive to *outputting* a forward link wireless signal as positively recited in claim 10. Elements 2, 4, 9 of Will fail to disclose or suggest the claimed communication stations. Limitations of claim 10 are not shown or suggested in the prior art of record and claim 10 is allowable for at least this reason.

The Office Action is devoid of identifying any communication circuitry which allegedly corresponds to the claimed communication circuits defined in claim 10. The Examiner cites teachings in column 4, lines 17-48 of Will but such teachings merely refer to a communications unit allegedly identified in the Office Action to correspond to one of the communication stations. As recited in claim 10, the communication circuits are separate claimed components from the communication stations. The communication circuits are not shown or suggested in the prior art of record and claim 10 is allowable for at least this reason.

The Examiner cites element 9 as allegedly corresponding to the claimed communication station and the housing. Claim 10 clearly recites the housing remotely located with respect to the communication stations and reference 9 of Will fails to disclose or suggest the communication station and the housing as defined in accordance with claim 10. The housing is not shown or suggested in the prior art of record and claim 10 is allowable for at least this reason.

Numerous limitations of claim 10 are not shown or suggested in the prior art of record and Applicants respectfully request allowance of claim 10 for at least this reason.

The claims which depend from independent claim 10 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Referring to claim 17, it is stated in the Office Action that the communication circuitry includes a plurality of wireless transceivers referring to the teachings in column 4, lines 1-12 of Will. The wireless transceivers are not shown or suggested in Will and

Applicants respectfully request allowance of claim 17 for at least this reason. Applicants respectfully request clarification as to the specific teachings of Will which allegedly disclose or suggest the claimed wireless transceivers if claim 17 is not found to be allowable and in accordance with the CFR.

Referring to claim 18, elements 2, 4, 9 of Will are identified in the Office Action as allegedly disclosing the claimed communication stations. As clearly defined in claim 18, communication stations are individually configured to output forward link wireless signals, receive return link wireless signals and generate return link communication signals. Individual components 2, 4, 9 of Will communicate or generate at most two signals as clearly depicted in Fig. 1. Elements 2, 4, 9 fails to disclose or suggest the claimed communication stations. The claimed communication stations are not shown or suggested in Will and claim 18 is allowable for at least this reason.

Element 9 is not configured to output wireless signals and accordingly, does not disclose or suggest a claimed communication station. Element 2 fails to disclose or suggest receiving wireless signals and accordingly fails to disclose or suggest the claimed communication station. Element 4 of Will does not receive wireless signals responsive to outputting wireless signals as specified in claim 18. The communication stations are not shown or suggested in the prior art of record and claim 18 is allowable for at least this reason.

On page 5 of the Office Action, element 9 is identified as disclosing the claimed housing. Reference 9 is also identified as disclosing communication station 9. Claim 18 positively recites the housing remotely located with respect to at least one of the

communication stations. Element 9 fails to disclose or suggest the claimed housing. Numerous limitations of claim 18 are not shown or suggested in the prior art of record and claim 18 is allowable for at least this reason.

The claims which depend from independent claim 18 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Claim 24 recites communicating a return link communication signal from the communication station using communication circuitry. Page 6 of the Office Action recites elements of Will which allegedly correspond to limitations of Applicants' claim 24. The Office Action is devoid of identifying any teachings which allegedly correspond to the claimed communication circuitry. Communicating a return link communication signal from the communication station using communication circuitry is not shown or suggested in the prior art of record and claim 24 is allowable for at least this reason.

The claims which depend from independent claim 24 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Claim 34 recites communicating forward link wireless signals, receiving return link wireless signals within the respective communication stations of the interrogator responsive to the communicating the respective forward link wireless signals, and generating return link communication signals within the communication stations corresponding to the return link wireless signals. Will is devoid of disclosing or suggesting the claimed communicating, receiving and generating as defined in claim 31. The Office

Action is devoid of defining elements of Will which allegedly correspond to the claimed limitations. Numerous limitations of claim 31 are not shown or suggested in the prior art of record and claim 31 is patentable for at least this reason.

The claims which depend from independent claim 31 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Referring to the obviousness rejections, claim 2 stands rejected over Will in view of Komara. A proper obviousness rejection requires motivation for one of ordinary skill in the art to combine the reference teachings. In paragraph 8 on page 8 of the Office Action, it is stated that the combination is obvious to add an LNA of Komara to Will in order to raise the attenuation level to a higher level to keep the signal from degrading. Such is insufficient motivation for one of ordinary skill in the art to combine the reference teachings.

More specifically, there is no identification that the structure of Will experiences problems with degrading signals. There is no identification that Will would benefit from raising an attenuation level to a higher level. There is no evidence apart from bald, cursory statements in the Office Action that the teachings of Komara could be utilized in the structure of Will. In sum, there is absolutely no evidence that one of skill in the art would look to Komara for teachings to improve the Will device or that the Will device operated in a faulty manner to motivate one for improvement.

In addition, there is no evidence that the teachings of Komara can be properly combined with the teachings of Will. Which teachings of Will would be disregarded and

which teachings would be modified or accepted to operate with the teachings of Komara? Similarly, what teachings of Komara would be disregarded and which teachings modified or used in combination with the teachings of Will? The Examiner merely chose individual elements of the reference teachings improperly using Applicants' claimed invention as a road map. Such is improper and the obviousness rejection of claim 2 is improper for at least this reason.

Referring to claim 3, it is stated on page 8 of the Office Action that it would be obvious to add adjustment circuitry of Komara to Will in order to accurately tune to the precise signal along the communication line. There is absolutely no evidence that Will is in need of additional tuning or experiences problems with tuning to a precise signal. There is absolutely no evidence of record that one would be motivated to combine the teachings of Komara with the teachings of Will or that even if the references were combined such would result in an improved device or solve any problems of Will. There is no motivation to combine the references and the obviousness rejection of claim 3 is improper for at least this additional reason.

Referring to page 11 of the Office Action, it is stated with reference to claim 21 that it would have been obvious to combine Komara and Will in order to have interior circuits between the communication station and the base station to communicate. The record is entirely devoid of any evidence that Will is concerned with or would function in an improved manner by providing interior circuits between a communication station and a base station to communicate. The circuitry disclosed in Will implements communications and one would not be motivated to provide any additional circuitry inasmuch as the

provided circuitry already operates to communicate. There is no evidence of record of any problems in the operation of Will, or that combining teachings of Komara would resolve any problems, or that one would be motivated to combine Komara with Will. There is no evidence that Komara could in fact be combined with Will. There is no motivation and the rejection of claim 21 is improper for at least this additional reason.

With reference to claim 32 on page 13 of the Office Action, it is stated that the combination is appropriate to add amplification of Komara to Will in order to reduce noise along with communication transmission. Once again, the record is devoid of evidence illustrating that Will experiences problems with noise or that one would be motivated to reduce noise along a communication transmission of Will. There is no evidence of record that a combination of Komara with Will would in fact result in any reduction in noise along a communication transmission. There is no evidence of record that Komara could be combined with components of Will to result in an operable device. There is no motivation to combine the teachings of Komara with the teachings of Will and the obviousness rejection of claim 31 is inappropriate for at least this reason.

There is no motivation for one of skill in the art to combine the teachings of Komara with the teachings of Will in support of the rejection of the claims. Applicants respectfully request withdrawal of the 103 rejections for at least this compelling reason.

In accordance with MPEP §706.07 (b), Applicants respectfully request an interview prior to any first Action, and according to the MPEP, such request should be granted. Applicants respectfully request a telephonic interview if any of the claims are not found to

be allowable. In addition, Applicants respectfully request issuance of a non-final first action in accordance with MPEP §706.07(b) if any claim is not found to be allowable.

Applicants include new dependent claim 40 which defines the at least one remote communication device configured to receive the forward link wireless signal and to communicate the return link wireless signal responsive to receiving the forward link wireless signal. Claim 1 recites the communication station configured to output the forward link wireless signal and to receive the return link wireless signal. Accordingly, claim 40 recites the communication station outputting the forward link wireless signal, the remote communication device receiving the forward link wireless signal, the remote communication device communicating the return link wireless signal responsive to receiving the forward link wireless signal, and the communication station receiving the return link wireless signal. Will fails to disclose or suggest limitations of the dependent claim 40. The new dependent claim 40 is allowable over the prior art.

Claim 41 recites receiving the return link wireless signal within the at least one remote communication device, and wherein the communicating the return link wireless signal is responsive to the receiving. Claim 41 is allowable over the prior art.

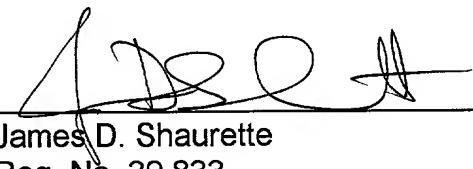
New claim 42 corresponds to language in paragraph 4 on pages 14 and 15 under the section "allowable subject matter" as set forth in the Office Action dated July 30, 2001. Applicants respectfully request allowance of claims 42 and claim 43 which depends therefrom.

Applicants respectfully request allowance of all pending claims.

The Examiner is requested to phone the undersigned if the Examiner believes such would facilitate prosecution of the present application. The undersigned is available for telephone consultation at any time during normal business hours (Pacific Time Zone).

Respectfully submitted,

Dated: 2/19/02

By: 
James D. Shaurette
Reg. No. 39,833

2007-02-19 14:57:21

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Inventor David K. Ovard et al.
Assignee Micron Technology, Inc.
Group Art Unit Unknown
Examiner Unknown
Attorney's Docket No. MI40-341
Title: Wireless Communication Systems, Interrogators and Methods of Communication Within A Wireless Communication System

VERSION WITH MARKINGS TO SHOW CHANGES MADE ACCOMPANYING
PRELIMINARY AMENDMENT

In the Claims

The claims have been amended as follows. Underlines indicate insertions and strikeouts indicate deletions.

1. (Amended) A wireless communication system comprising:

at least one remote communication device configured to communicate a return link wireless signal responsive to a forward link wireless signal;

an interrogator including:

a communication station configured to output the forward link wireless signal,
to receive the return link wireless signal outputted from the remote communication device
and to generate a return link communication signal corresponding to the return link wireless signal;

communication circuitry coupled with the communication station and configured to communicate the return link communication signal; and

a housing remotely located with respect to the communication station and including circuitry configured to receive the return link communication signal from the communication circuitry and to process the return link communication signal.

10. (Amended) An interrogator of a wireless communication system comprising:

a plurality of communication station stations positioned in different locations and individually configured to output a forward link wireless signal, to receive a return link wireless signal responsive to the outputting, and to generate a return link communication signal corresponding to the return link wireless signal;

communication circuitry circuits individually coupled with the communication station stations and configured to communicate respective ones of the return link communication signal signals; and

a housing remotely located with respect to the communication station stations and including circuitry configured to receive the return link communication signal signals from the communication circuitry circuits and to process the return link communication signal signals.

11. (Amended) The interrogator according to claim 10 wherein the communication station stations includes individually include a low noise amplifier configured to increase the power of the return link communication signal signals.

12. (Amended) The interrogator according to claim 10 wherein the housing includes adjustment circuitry configured to receive the return link communication signal signals from the communication circuitry circuits and to adjust an electrical characteristic of the return link communication signal signals.

13. (Amended) The interrogator according to claim 12 wherein the adjustment circuitry is configured to output the return link communication signal signals at a substantially constant level.

15. (Amended) The interrogator according to claim 14 wherein the automatic gain control circuitry is configured to monitor the power of the return link communication signal signals and to adjust the power of the return link communication signal signals responsive to the monitoring.

18. (Amended) An interrogator of a wireless communication system comprising:
a plurality of communication stations individually configured to output forward link wireless signals, to receive return link wireless signals responsive to the outputting and to generate return link communication signals corresponding to the return link wireless signals; and

a housing remotely located with respect to at least one of the communication stations and including circuitry configured to receive the return link communication signals from the communication stations and to process the return link communication signals.

24. (Amended) A method of communicating within a wireless communication system comprising:

providing an interrogator and at least one remote communication device;

communicating a forward link wireless signal using a communication station of the interrogator;

communicating a return link wireless signal using the remote communication device responsive to the communicating of the forward link wireless signal;

receiving the return link wireless signal within ~~a~~ the communication station of the interrogator;

generating a return link communication signal within the communication station corresponding to the return link wireless signal;

communicating the return link communication signal from the communication station using communication circuitry; and

receiving the return link communication signal from the communication circuitry within a housing of the interrogator remotely located from the communication station.

31. (Amended) A method of communicating within a wireless communication system comprising:

providing an interrogator having a housing and ~~at least one~~ a plurality of communication station stations remotely located from housing;

communicating forward link wireless signals using the communication stations of the interrogator;

receiving a return link wireless signal signals within the respective communication station stations of the interrogator responsive to the communicating the respective forward link wireless signals;

generating a return link communication signal signals within the communication station stations corresponding to the return link wireless signal signals;

communicating the return link communication signal signals from the communication station stations using respective communication circuitry circuits; and

receiving the return link communication signal signals within the housing from the communication circuitry circuits.

32. (Amended) The method according to claim 31 further comprising amplifying the return link communication signal signals before the communicating the return link communication signal signals.

33. (Amended) The method according to claim 31 further comprising adjusting at least one characteristic of the return link communication signal signals after the receiving the return link communication signal signals.

34. (Amended) The method according to claim 33 wherein the adjusting provides a return link communication signal signals having a substantially constant level.

36. (Amended) The method according to claim 31 wherein the ~~providing~~ comprises providing a plurality of communication stations ~~remotely located from the housing, and the communication stations individually receive return link wireless signals within one of a plurality of communication ranges.~~

37. (Amended) The method according to claim 31 further comprising processing the return link communication ~~signal signals~~ after the receiving the return link communication ~~signal signals~~.

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Radio frequency identification (RFID) is a relatively new AIDC technology, first appearing in tracking and access applications during the 1980s. These wireless AIDC systems allow for non-contact reading and consequently are effective in manufacturing and other hostile environments where barcode labels could not survive. RFID has established itself in a wide range of markets including livestock identification and automated vehicle identification (AVI) systems because of its ability to track moving objects. The technology has become a primary player in automated data collection, identification, and analysis systems worldwide.

Key Attributes and Limitations

- Growth area of automatic identification and data capture
- New generation, lower cost transponders offering multi-read capabilities
- Read/write electronic storage technology
- Wide range of products satisfying a range of data storage and data transfer needs
- Low to reasonably high (64Kbits) data storage capability
- Wide range of data transfer rates, depending on device and carrier frequency used. Generally speaking, the higher the carrier frequency the higher the data transfer rates achievable
- Close proximity (inductive systems) to tens of meters (radiating systems), without the need for line-of-sight interrogation, depending upon type of transponders and interrogation hardware
- Robust constructions available, allowing use in reasonably

Frequently Asked Questions

Resources

Case Studies

Common Applications

What is RFID?

Code of Conduct

Standards

A summary

SC31/WG4/SG3 Air Interface Standards

GTAG™ - a global initiative started by the UCC and EAN International to create global performance standards for the use of Radio Frequency in the EAN/UCC system.

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